REMARKS

Claims 18-38 and 62-73 are pending. Claims 18, 27, 33, and 67 have been amended for clarity. The specification supports the amendment of claims 18, 27, and 67, for example, at page 35, lines 9-34, page 38, lines 3-6 and the Figures. Note that the specification throughout essentially describes flow through the beam, which implies that a product flow is located downstream form the radiation beam when the product material encounters the substrate such that the radiation beam is located at a reaction zone away from the substrate. Applicant notes that the amendment of claims 18, 27 and 67 conforms the claims to the scope covered under Applicant's arguments in the Amendment of February 14, 2007 such that further search is not needed to evaluate these claims. Claim 33 has been amended for clarity. The specification supports the amendment of claim 33, for example, at page 14, line 33 to page 15, line 8 and the Figures. No new matter is introduced by the amendments.

Applicants acknowledge with appreciation the allowance of claims 71-73 and the allowability of claims 25 and 29-32. Applicants respectfully request reconsideration of the remaining rejections based on the above amendments and the following remarks.

Rejection Over 35 U.S.C. § 112

The Examiner rejected claims 33-38 and 62-66 under 35 U.S.C. § 112, second paragraph for indefiniteness. With respect to claims 62-66, which depends on base claim 27, Examiner withdrew the rejection of claim 27 under 35 U.S.C. §112, ¶2. Previously, claims 62-66 were rejected under 35 U.S.C. §112, ¶2 for being dependent on base claim 27. Applicant assumes that there are no outstanding rejection of claims 62-66 under 35 U.S.C. §112, ¶2 since the rejection of claim 27 under 35 U.S.C. §112, ¶2 was withdrawn.

With respect to claim 33, the Examiner indicated that: "The relationship between the major and minor axes is uncertain other than the major axis is twice the size of the minor axis. It

is not clear where the axes are in relation to one another, and in what direction the major or minor axis travels depending on one's frame of reference. It is required that the cross section is perpendicular to the propagation direction, but is it the propagation direction of a radiation beam or something else entirely? This also renders the claim indefinite as it is not clear what the axes are perpendicular to. For examination purposes, the propagation direction is assumed to be along the direction of the radiation beam."

Applicant respectfully maintains that claim 33 was clear and definite as it has been examined for some time, although Applicant has amended the claim for further clarity. The propagation direction refers to the direction in which the reactant stream flows from an inlet to the substrate with an deflected flow proceeding to an exhaust manifold. A radiation beam has not been recited in this claim so that the propagation direction cannot refer to a radiation beam. The reactant stream has a cross section perpendicular to its propagation direction. As described in the specification, the cross section can be elongated so that a line, or more precisely a stripe, of coating material is simultaneously deposited on the substrate. Because the cross section is characterized by a major axis and a minor axis, the major axis and the minor axis are also perpendicular to the propagation direction. The major axis is longer dimension of the elongated cross section, and the minor axis is along the shorter dimension of the elongated cross section. The frame of reference is defined by the configuration of the flow. The elongated flow is defined by an elongated nozzle that generates the flow. See, for example, the insert of Fig. 9. This elongated flow can be advantageously used to coat a substrate in one pass, as shown in Fig. 19.

Because claim 33 is clear and definite and claims 34-38 have been rejected for being dependent on claim 33, Applicants respectfully request withdrawal of the rejection of claims 33-38 under 35 U.S.C. § 112, ¶2 for indefiniteness.

Rejection Over Whitney et al.

The Examiner rejected claims 18-20, 22-24, 26-28, 33-37, 62, and 64 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,043,548 to Whitney et al. (Whitney). Applicants respectfully disagree with Examiner's rejection and maintain that Whitney does not disclose Applicant's claimed inventions. However, to advance prosecution, Applicant has amended claims 18, 27 and 33 for clarity. The amendments are consistent with Applicant's previous arguments such that no significant further consideration should be needed for examination of the claims. Based on the clarifications, Whitney clearly does not teach the claimed invention.

First, Applicant discusses claims 18, 27 and claims depending therefrom. Whitney does not disclose "...the radiation beam, which does not intersect the substrate..." Whitney discloses, for example, "[T]he beam 146 of the laser 102 is focused by the optical system 104 to a focal point 150 that is on the beam axis 106 and within the confinement chamber 128. The focal point 150 is sufficiently far from the surface of the substrate that the combination of direct heating and plasma heating are not sufficient to melt the surface of the substrate." See, for example, col. 5, lines 47-53. Whitney also discloses, for example, that "[t]he heating of the substrate is influenced by the plasma, with a plasma entirely contained within the apparatus 10 heating the substrate only by the relative small amount of radiation through the opening 116. The substrate is also heated by the energy released as the deposited atoms solidify and by the energy of the laser beam that is transmitted through the plasma and reaches the substrate in a defocussed state." See, for example, col. 6, line 67-col. 7, line 6.

Therefore, Whitney does not anticipate or render obvious, alone or in combination, the limitation "...the radiation beam, which does not intersect the substrate..." in claims 18 and 27. Applicants respectfully request withdrawal of the rejection of claims 18-20, 22-24, 26-28, 62 and 64 under 35 U.S.C. § 102(b) as being anticipated by Whitney.

With respect to claim 33, the configuration taught by Whitney is completely different from configuration indicated in Applicant's invention. For example, Whitney has two flows, as noted by the Examiner from carrier tubes 136. The two flows in Whitney intersect in an inherently turbulent configuration at the light beam to form a plasma that is directed down cylindrical confinement chamber 128 to form a spot on the substrate surface. See column 5, lines 6-10 for a description of the cylindrical confinement chamber. In contrast, Applicants have an entrained elongated flow, generally with an approximately rectangular cross section, that is roughly maintained from the inlet nozzle to the substrate deposition with a reaction along the way that forms product composition from the reactant composition. This entrained flow then forms a deposited stripe on the substrate due to its elongation. To further clarify this relationship, Applicant has amended the claim for clarity with respect to the nature of the resulting coating on the substrate. Thus, the distinction with the fundamentally different configuration in Whitney has been clarified.

Therefore, Whitney does not disclose all the limitations in claim 33. Applicants respectfully request withdrawal of the rejection of claims 33-37 under 35 U.S.C. § 102(b) as being anticipated by Whitney.

Rejection Over Whitney et al. and Rao et al.

The Examiner rejected claims 21, 38, 63 and 65-70 under 35 U.S.C. § 103(a) as being unpatentable over Whitney in view of U.S. Patent 5,874,134 to Rao et al. (Rao). Rao fails to disclose or suggest the limitation "...the radiation beam, which does not intersect the substrate..." Whitney in combination with Rao fails to make up for this deficiency. Applicants respectfully request withdrawal of the rejection of claims 21, 38, 63 and 65-70 under 35 U.S.C. § 102(b) as being obvious over Whitney in view of Rao.

CONCLUSIONS

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

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